

Docket No.: M4065.0694/P694-A
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
John T. Moore et al.

Application No.: Not Yet Assigned

Filed: February 13, 2004

Art Unit: N/A

For: METHODS OF FORMING NON-
VOLATILE RESISTANCE VARIABLE
DEVICES, AND NON-VOLATILE
RESISTANCE VARIABLE DEVICES

Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT (IDS)

MS Patent Application
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement accompanies the new patent application submitted herewith.

Copies of the references on the PTO/SB/08 are not provided.

Those patent(s) or publication(s) which are marked with a double asterisk (**) next to the Cite No. in the attached form PTO/SB/08 (facsimile) are not supplied

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because they were previously cited by or submitted to the Office in a prior application number 09/999,883, filed October 31, 2001 and relied upon in this application for an earlier filing date under 35 U.S.C. 120.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1073, under Order No. M4065.0694/P694-A. A duplicate copy of this paper is enclosed.

Dated: February 13, 2004

Respectfully submitted,

By 

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				C mplete if Known		
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U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	AA	6,388,324	05/14/2002	Kozicki et al. **	
	AB	US 2002/0000666	01/03/2002	Kozicki et al. **	
	AC	5,500,532	03/19/1996	Kozicki et al. **	
	AD	US 2002/0168820	11/14/2002	Kozicki et al. **	
	AE	6,469,364	10/22/2002	Kozicki **	
	AF	2003/0168651	09-11-2003	Kozicki **	
	AG	2003/0156447	08-21-2003	Kozicki **	
	AH	2003/0137869	07-24-2003	Kozicki **	
	AI	6,473,332	10/2002	Ignatiev et al. **	
	AJ	6,469,364	10/2002	Kozicki **	
	AK	2002/0168820 App.	11/2002	Kozicki **	
	AL	4,316,946	1/1982	Masters, et al. **	
	AM	4,419,421	12/1983	Wichelhaus, et al. **	
	AN	6,487,106	11/26/2002	Kozicki **	
	AO	5,314,772	5/24/1994	Kozicki **	
	AP	2002/0190350 APP	12/19/2002	Kozicki **	
	AQ	2003/0027416 APP	2/6/2003	Moore **	
	AR	2003/0001229 APP	1/2/2003	Moore et al. **	
	AS	2002/0127886 APP	9/12/2002	Moore et al. **	
	AT	2002/0123170 APP	9/5/2002	Moore et al. **	
	AU	2002/0163828 APP	11/2002	Krieger et al **	
	AV	6,072,716	6/2000	Jacobson et al. **	
	AW	5,272,359	12/93	Nagasubramanian et al. **	
	AX	4,671,618	6/87	Wu et al. **	
	AY	4,800,526	1/89	Lewis **	
	AZ	2003/0035314	02/20/03	Kozicki **	
	AA1	2003/0035315	02/20/03	Kozicki **	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
	BA	WO 97/48032	12/18/1997	Kozicki et al. **		
	BB	WO 99/28914	06/10/1999	Kozicki et al. **		

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant

¹ Applicant's unique citation designation number (optional). ² See attached Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	CA	Abdel-All, A.; Elshafie, A.; Elhawary, M.M., DC electric-field effect in bulk and thin-film Ge ₅ As ₃₈ Te ₅₇ chalcogenide glass, Vacuum 59 (2000) 845-853. **	
	CB	Adler, D.; Moss, S.C., Amorphous memories and bistable switches, J. Vac. Sci. Technol. 9 (1972) 1182-1189. **	
	CC	Adler, D.; Henisch, H.K.; Mott, S.N., The mechanism of threshold switching in amorphous alloys, Rev. Mod. Phys. 50 (1978) 209-220. **	
	CD	Affifi, M.A.; Labib, H.H.; El-Fazary, M.H.; Fadel, M., Electrical and thermal properties of chalcogenide glass system Se ₇₅ Ge _{25-x} Sbx, Appl. Phys. A 55 (1992) 167-169. **	
	CE	Affifi, M.A.; Labib, H.H.; Fouad, S.S.; El-Shazly, A.A., Electrical & thermal conductivity of the amorphous semiconductor GexSe _{1-x} , Egypt, J. Phys. 17 (1986) 335-342. **	
	CF	Alekperova, Sh.M.; Gadzhieva, G.S., Current-Voltage characteristics of Ag ₂ Se single crystal near the phase transition, Inorganic Materials 23 (1987) 137-139. **	
	CG	Aleksiejunas, A.; Cesnys, A., Switching phenomenon and memory effect in thin-film heterojunction of polycrystalline selenium-silver selenide, Phys. Stat. Sol. (a) 19 (1973) K169-K171. **	
	CH	Angell, C.A., Mobile ions in amorphous solids, Annu. Rev. Phys. Chem. 43 (1992) 693-717. **	
	CI	Aniya, M., Average electronegativity, medium-range-order, and ionic conductivity in superionic glasses, Solid state Ionics 136-137 (2000) 1085-1089. **	
	CJ	Asahara, Y.; Izumitani, T., Voltage controlled switching in Cu-As-Se compositions, J. Non-Cryst. Solids 11 (1972) 97-104. **	
	CK	Asokan, S.; Prasad, M.V.N.; Parthasarathy, G.; Gopal, E.S.R., Mechanical and chemical thresholds in IV-VI chalcogenide glasses, Phys. Rev. Lett. 62 (1989) 808-810. **	
	CL	Baranovskii, S.D.; Cordes, H., On the conduction mechanism in ionic glasses, J. Chem. Phys. 111 (1999) 7546-7557. **	
	CM	Belin, R.; Taillades, G.; Pradel, A.; Ribes, M., Ion dynamics in superionic chalcogenide glasses: complete conductivity spectra, Solid state Ionics 136-137 (2000) 1025-1029. **	
	CN	Belin, R.; Zerouale, A.; Pradel, A.; Ribes, M., Ion dynamics in the argyrodite compound Ag ₇ GeSe ₅ I: non-Arrhenius behavior and complete conductivity spectra, Solid State Ionics 143 (2001) 445-455. **	
	CO	Benmore, C.J.; Salmon, P.S., Structure of fast ion conducting and semiconducting glassy chalcogenide alloys, Phys. Rev. Lett. 73 (1994) 264-267. **	
	CP	Bernede, J.C., Influence du metal des electrodes sur les caracteristiques courant-tension des structures M-Ag ₂ Se-M, Thin solid films 70 (1980) L1-L4. **	
	CQ	Bernede, J.C., Polarized memory switching in MIS thin films, Thin Solid Films 81 (1981) 155-160. **	
	CR	Bernede, J.C., Switching and silver movements in Ag ₂ Se thin films, Phys. Stat. Sol. (a) 57 (1980) K101-K104. **	
	CS	Bernede, J.C.; Abachi, T., Differential negative resistance in metal/insulator/metal structures with an upper bilayer electrode, Thin solid films 131 (1985) L61-L64. **	
	CT	Bernede, J.C.; Conan, A.; Fousenan't, E.; El Bouchairi, B.; Goureaux, G., Polarized memory switching effects in Ag ₂ Se/Se/M thin film sandwiches, Thin solid films 97 (1982) 165-171. **	
	CU	Bernede, J.C.; Khelil, A.; Kettaf, M.; Conan, A., Transition from S- to N-type differential negative resistance in Al-Al ₂ O ₃ -Ag _{2-x} Se _{1+x} thin film structures, Phys. Stat. Sol. (a) 74 (1982) 217-224. **	
	CV	Bondarev, V.N.; Pikhitsa, P.V., A dendrite model of current instability in RbAg ₄ I ₅ , Solid State Ionics 70/71 (1994) 72-76. **	
	CW	Boolchand, P., The maximum in glass transition temperature (T _g) near x=1/3 in GexSe _{1-x}	

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO		Complete if Known		
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Sheet	3	8	Attorney Docket Number	M4065.0694/P694-A

		Glasses, Asian Journal of Physics (2000) 9, 709-72. **	
	CX	Boolchand, P.; Bresser, W.J., Mobile silver ions and glass formation in solid electrolytes, Nature 410 (2001) 1070-1073. **	
	CY	Boolchand, P.; Georgiev, D.G.; Goodman, B., Discovery of the Intermediate Phase in Chalcogenide Glasses, J. Optoelectronics and Advanced Materials, 3 (2001), 703 **	
	CZ	Boolchand, P.; Selvanathan, D.; Wang, Y.; Georgiev, D.G.; Bresser, W.J., Onset of rigidity in steps in chalcogenide glasses, Properties and Applications of Amorphous Materials, M.F. Thorpe and Tichy, L. (eds.) Kluwer Academic Publishers, the Netherlands, 2001, pp. 97-132. **	
	CA1	Boolchand, P.; Enzweiler, R.N.; Tenhover, M., Structural ordering of evaporated amorphous chalcogenide alloy films: role of thermal annealing, Diffusion and Defect Data Vol. 53-54 (1987) 415-420. **	
	CB1	Boolchand, P.; Grothaus, J.; Bresser, W.J.; Suranyi, P., Structural origin of broken chemical order in a GeSe ₂ glass, Phys. Rev. B 25 (1982) 2975-2978. **	
	CC1	Boolchand, P.; Grothaus, J.; Phillips, J.C., Broken chemical order and phase separation in GexSe1-x glasses, Solid state comm. 45 (1983) 183-185. **	
	CD1	Boolchand, P., Bresser, W.J., Compositional trends in glass transition temperature (Tg), network connectivity and nanoscale chemical phase separation in chalcogenides, Dept. of ECECS, Univ. Cincinnati (October 28, 1999) 45221-0030. **	
	CE1	Boolchand, P.; Grothaus, J., Molecular Structure of Melt-Quenched GeSe ₂ and GeS ₂ glasses compared, Proc. Int. Conf. Phys. Semicond. (Eds. Chadi and Harrison) 17 th (1985) 833-36. **	
	CF1	Bresser, W.; Boolchand, P.; Suranyi, P., Rigidity percolation and molecular clustering in network glasses, Phys. Rev. Lett. 56 (1986) 2493-2496. **	
	CG1	Bresser, W.J.; Boolchand, P.; Suranyi, P.; de Neufville, J.P., Intrinsically broken chalcogen chemical order in stoichiometric glasses, Journal de Physique 42 (1981) C4-193-C4-196. **	
	CH1	Bresser, W.J.; Boolchand, P.; Suranyi, P.; Hernandez, J.G., Molecular phase separation and cluster size in GeSe ₂ glass, Hyperfine Interactions 27 (1986) 389-392. **	
	CI1	Cahen, D.; Gilet, J.-M.; Schmitz, C.; Chernyak, L.; Gartsman, K.; Jakubowicz, A., Room-Temperature, electric field induced creation of stable devices in CuInSe ₂ Crystals, Science 258 (1992) 271-274. **	
	CJ1	Chatterjee, R.; Asokan, S.; Titus, S.S.K., Current-controlled negative-resistance behavior and memory switching in bulk As-Te-Se glasses, J. Phys. D: Appl. Phys. 27 (1994) 2624-2627. **	
	CK1	Chen, C.H.; Tai, K.L., Whisker growth induced by Ag photodoping in glassy GexSe1-x films, Appl. Phys. Lett. 37 (1980) 1075-1077. **	
	CL1	Chen, G.; Cheng, J., Role of nitrogen in the crystallization of silicon nitride-doped chalcogenide glasses, J. Am. Ceram. Soc. 82 (1999) 2934-2936. **	
	CM1	Chen, G.; Cheng, J.; Chen, W., Effect of Si ₃ N ₄ on chemical durability of chalcogenide glass, J. Non-Cryst. Solids 220 (1997) 249-253. **	
	CN1	Cohen, M.H.; Neale, R.G.; Paskin, A., A model for an amorphous semiconductor memory device, J. Non-Cryst. Solids 8-10 (1972) 885-891. **	
	CO1	Croitoru, N.; Lazarescu, M.; Popescu, C.; Telnic, M.; and Vescan, L., Ohmic and non-ohmic conduction in some amorphous semiconductors, J. Non-Cryst. Solids 8-10 (1972) 781-786. **	
	CP1	Dalven, R.; Gill, R., Electrical properties of beta-Ag ₂ Te and beta-Ag ₂ Se from 4.2 to 300K, J. Appl. Phys. 38 (1967) 753-756. **	
	CQ1	Davis, E.A., Semiconductors without form, Search 1 (1970) 152-155. **	
	CR1	Deamaley, G.; Stoneham, A.M.; Morgan, D.V., Electrical phenomena in amorphous oxide films, Rep. Prog. Phys. 33 (1970) 1129-1191. **	
	CS1	Dejus, R.J.; Susman, S.; Volin, K.J.; Montague, D.G.; Price, D.L., Structure of Vitreous Ag-Ge-Se, J. Non-Cryst. Solids 143 (1992) 162-180. **	
	CT1	den Boer, W., Threshold switching in hydrogenated amorphous silicon, Appl. Phys. Lett. 40 (1982) 812-813. **	

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Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Complete if Known		
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Sheet	4	8	Attorney Docket Number	M4065.0694/P694-A

	CU1	Drusedau, T.P.; Panckow, A.N.; Klabunde, F., The hydrogenated amorphous silicon/nanodisperse metal (SIMAL) system-Films of unique electronic properties, J. Non-Cryst. Solids 198-200 (1996) 829-832. **	
	CV1	El Bouchairi, B.; Bernede, J.C.; Burgaud, P., Properties of Ag ₂ -xSe _{1+x/n} -Si diodes, Thin Solid Films 110 (1983) 107-113. **	
	CW1	El Gharras, Z.; Bourahla, A.; Vautier, C., Role of photoinduced defects in amorphous GexSe _{1-x} photoconductivity, J. Non-Cryst. Solids 155 (1993) 171-179. **	
	CX1	El Ghrandi, R.; Calas, J.; Galibert, G.; Averous, M., Silver photodissolution in amorphous chalcogenide thin films, Thin Solid Films 218 (1992) 259-273. **	
	CY1	El Ghrandi, R.; Calas, J.; Galibert, G., Ag dissolution kinetics in amorphous GeSe _{5.5} thin films from "in-situ" resistance measurements vs time, Phys. Stat. Sol. (a) 123 (1991) 451-460. **	
	CZ1	El-kady, Y.L., The threshold switching in semiconducting glass Ge ₂₁ Se ₁₇ Te ₆₂ , Indian J. Phys. 70A (1996) 507-516. **	
	CA2	Elliott, S.R., A unified mechanism for metal photodissolution in amorphous chalcogenide materials, J. Non-Cryst. Solids 130 (1991) 85-97. **	
	CB2	Elliott, S.R., Photodissolution of metals in chalcogenide glasses: A unified mechanism, J. Non-Cryst. Solids 137-138 (1991) 1031-1034. **	
	CC2	Elsamanoudy, M.M.; Hegab, N.A.; Fadel, M., Conduction mechanism in the pre-switching state of thin films containing Te As Ge Si, Vacuum 46 (1995) 701-707. **	
	CD2	El-Zahed, H.; El-Korashy, A., Influence of composition on the electrical and optical properties of Ge ₂₀ BixSe _{80-x} films, Thin Solid Films 376 (2000) 236-240. **	
	CE2	Fadel, M., Switching phenomenon in evaporated Se-Ge-As thin films of amorphous chalcogenide glass, Vacuum 44 (1993) 851-855. **	
	CF2	Fadel, M.; El-Shair, H.T., Electrical, thermal and optical properties of Se ₇₅ Ge ₇ Sb ₁₈ , Vacuum 43 (1992) 253-257. **	
	CG2	Feng, X.; Bresser, W.J.; Boolchand, P., Direct evidence for stiffness threshold in Chalcogenide glasses, Phys. Rev. Lett. 78 (1997) 4422-4425. **	
	CH2	Feng, X.; Bresser, W.J.; Zhang, M.; Goodman, B.; Boolchand, P., Role of network connectivity on the elastic, plastic and thermal behavior of covalent glasses, J. Non-Cryst. Solids 222 (1997) 137-143. **	
	CI2	Fischer-Colbrie, A.; Bienenstock, A.; Fuoss, P.H.; Marcus, M.A., Structure and bonding in photodiffused amorphous Ag-GeSe ₂ thin films, Phys. Rev. B 38 (1988) 12388-12403. **	
	CJ2	Fleury, G.; Hamou, A.; Viger, C.; Vautier, C., Conductivity and crystallization of amorphous selenium, Phys. Stat. Sol. (a) 64 (1981) 311-316. **	
	CK2	Fritzsche, H., Optical and electrical energy gaps in amorphous semiconductors, J. Non-Cryst. Solids 6 (1971) 49-71. **	
	CL2	Fritzsche, H., Electronic phenomena in amorphous semiconductors, Annual Review of Materials Science 2 (1972) 697-744. **	
	CM2	Gates, B.; Wu, Y.; Yin, Y.; Yang, P.; Xia, Y., Single-crystalline nanowires of Ag ₂ Se can be synthesized by templating against nanowires of trigonal Se, J. Am. Chem. Soc. (2001) currently ASAP. **	
	CN2	Gosain, D.P.; Nakamura, M.; Shimizu, T.; Suzuki, M.; Okano, S., Nonvolatile memory based on reversible phase transition phenomena in telluride glasses, Jap. J. Appl. Phys. 28 (1989) 1013-1018. **	
	CO2	Guin, J.-P.; Rouxel, T.; Keryvin, V.; Sangleboeuf, J.-C.; Serre, I.; Lucas, J., Indentation creep of Ge-Se chalcogenide glasses below T _g : elastic recovery and non-Newtonian flow, J. Non-Cryst. Solids 298 (2002) 260-269. **	
	CP2	Guin, J.-P.; Rouxel, T.; Sangleboeuf, J.-C.; Melscoet, I.; Lucas, J., Hardness, toughness, and scratchability of germanium-selenium chalcogenide glasses, J. Am. Ceram. Soc. 85 (2002) 1545-52. **	
	CQ2	Gupta, Y.P., On electrical switching and memory effects in amorphous chalcogenides, J. Non-	

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Sheet	5	8	

		Cryst. Sol. 3 (1970) 148-154. **	
CR2		Haberland, D.R.; Stiegler, H., New experiments on the charge-controlled switching effect in amorphous semiconductors, J. Non-Cryst. Solids 8-10 (1972) 408-414. **	
CS2		Haifz, M.M.; Ibrahim, M.M.; Dongol, M.; Hammad, F.H., Effect of composition on the structure and electrical properties of As-Se-Cu glasses, J. Apply. Phys. 54 (1983) 1950-1954. **	
CT2		Hajto, J.; Rose, M.J.; Osborne, I.S.; Snell, A.J.; Le Comber, P.G.; Owen, A.E., Quantization effects in metal/a-Si:H/metal devices, Int. J. Electronics 73 (1992) 911-913. **	
CU2		Hajto, J.; Hu, J.; Snell, A.J.; Turvey, K.; Rose, M., DC and AC measurements on metal/a-Si:H/metal room temperature quantised resistance devices, J. Non-Cryst. Solids 266-269 (2000) 1058-1061. **	
CV2		Hajto, J.; McAuley, B.; Snell, A.J.; Owen, A.E., Theory of room temperature quantized resistance effects in metal-a-Si:H-metal thin film structures, J. Non-Cryst. Solids 198-200 (1996) 825-828. **	
CW2		Hajto, J.; Owen, A.E.; Snell, A.J.; Le Comber, P.G.; Rose, M.J., Analogue memory and ballistic electron effects in metal-amorphous silicon structures, Phil. Mag. B 63 (1991) 349-369. **	
CX2		Hayashi, T.; Ono, Y.; Fukaya, M.; Kan, H., Polarized memory switching in amorphous Se film, Japan. J. Appl. Phys. 13 (1974) 1163-1164. **	
CY2		Hegab, N.A.; Fadel, M.; Sedeek, K., Memory switching phenomena in thin films of chalcogenide semiconductors, Vacuum 45 (1994) 459-462. **	
CZ2		Hong, K.S.; Speyer, R.F., Switching behavior in II-IV-V2 amorphous semiconductor systems, J. Non-Cryst. Solids 116 (1990) 191-200. **	
CA3		Hosokawa, S., Atomic and electronic structures of glassy GexSe1-x around the stiffness threshold composition, J. Optoelectronics and Advanced Materials 3 (2001) 199-214. **	
CB3		Hu, J.; Snell, A.J.; Hajto, J.; Owen, A.E., Constant current forming in Cr/p+a-/Si:H/V thin film devices, J. Non-Cryst. Solids 227-230 (1998) 1187-1191. **	
CC3		Hu, J.; Hajto, J.; Snell, A.J.; Owen, A.E.; Rose, M.J., Capacitance anomaly near the metal-non-metal transition in Cr-hydrogenated amorphous Si-V thin-film devices, Phil. Mag. B. 74 (1996) 37-50. **	
CD3		Hu, J.; Snell, A.J.; Hajto, J.; Owen, A.E., Current-induced instability in Cr-p+a-/Si:H-V thin film devices, Phil. Mag. B 80 (2000) 29-43. **	
CE3		Iizima, S.; Sugi, M.; Kikuchi, M.; Tanaka, K., Electrical and thermal properties of semiconducting glasses As-Te-Ge, Solid State Comm. 8 (1970) 153-155. **	
CF3		Ishikawa, R.; Kikuchi, M., Photovoltaic study on the photo-enhanced diffusion of Ag in amorphous films of Ge2S3, J. Non-Cryst. Solids 35 & 36 (1980) 1061-1066. **	
CG3		Iyetomi, H.; Vashishta, P.; Kalia, R.K., Incipient phase separation in Ag/Ge/Se glasses: clustering of Ag atoms, J. Non-Cryst. Solids 262 (2000) 135-142. **	
CH3		Jones, G.; Collins, R.A., Switching properties of thin selenium films under pulsed bias, Thin Solid Films 40 (1977) L15-L18. **	
CI3		Joullie, A.M.; Marucchi, J., On the DC electrical conduction of amorphous As2Se7 before switching, Phys. Stat. Sol. (a) 13 (1972) K105-K109. **	
CJ3		Joullie, A.M.; Marucchi, J., Electrical properties of the amorphous alloy As2Se5, Mat. Res. Bull. 8 (1973) 433-442. **	
CK3		Kaplan, T.; Adler, D., Electrothermal switching in amorphous semiconductors, J. Non-Cryst. Solids 8-10 (1972) 538-543. **	
CL3		Kawaguchi, T.; Masui, K., Analysis of change in optical transmission spectra resulting from Ag photodoping in chalcogenide film, Japn. J. Appl. Phys. 26 (1987) 15-21. **	
CM3		Kawasaki, M.; Kawamura, J.; Nakamura, Y.; Aniya, M., Ionic conductivity of Agx(GeSe3)1-x (0<=x<=0.571) glasses, Solid state Ionics 123 (1999) 259-269. **	
CN3		Kolobov, A.V., On the origin of p-type conductivity in amorphous chalcogenides, J. Non-Cryst. Solids 198-200 (1996) 728-731. **	

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Sheet	6	8	Attorney Docket Number	M4065.0694/P694-A

CO3	Kolobov, A.V., Lateral diffusion of silver in vitreous chalcogenide films, J. Non-Cryst. Solids 137-138 (1991) 1027-1030. **
CP3	Korkinova, Ts.N.; Andreichin, R.E., Chalcogenide glass polarization and the type of contacts, J. Non-Cryst. Solids 194 (1996) 256-259. **
CQ3	Kotkata, M.F.; Afif, M.A.; Labib, H.H.; Hegab, N.A.; Abdel-Aziz, M.M., Memory switching in amorphous GeSeTe chalcogenide semiconductor films, Thin Solid Films 240 (1994) 143-146. **
CR3	Lakshminarayan, K.N.; Srivastava, K.K.; Panwar, O.S.; Dumar, A., Amorphous semiconductor devices: memory and switching mechanism, J. Instn Electronics & Telecom. Engrs 27 (1981) 16-19. **
CS3	Lal, M.; Goyal, N., Chemical bond approach to study the memory and threshold switching chalcogenide glasses, Indian Journal of pure & appl. phys. 29 (1991) 303-304. **
CT3	Leimer, F.; Stotzel, H.; Kottwitz, A., Isothermal electrical polarisation of amorphous GeSe films with blocking Al contacts influenced by Poole-Frenkel conduction, Phys. Stat. Sol. (a) 29 (1975) K129-K132. **
CU3	Leung, W.; Cheung, N.; Neureuther, A.R., Photoinduced diffusion of Ag in GexSe1-x glass, Appl. Phys. Lett. 46 (1985) 543-545. **
CV3	Matsushita, T.; Yamagami, T.; Okuda, M., Polarized memory effect observed on Se-SnO2 system, Jap. J. Appl. Phys. 11 (1972) 1657-1662. **
CW3	Matsushita, T.; Yamagami, T.; Okuda, M., Polarized memory effect observed on amorphous selenium thin films, Jpn. J. Appl. Phys. 11 (1972) 606. **
CX3	Mazurier, F.; Levy, M.; Souquet, J.L., Reversible and irreversible electrical switching in TeO2-V2O5 based glasses, Journal de Physique IV 2 (1992) C2-185 - C2-188. **
CY3	Messoussi, R.; Bernede, J.C.; Benhida, S.; Abachi, T.; Latef, A., Electrical characterization of M/Se structures (M=Ni, Bi), Mat. Chem. And Phys. 28 (1991) 253-258. **
CZ3	Mitkova, M.; Boolchand, P., Microscopic origin of the glass forming tendency in chalcogenides and constraint theory, J. Non-Cryst. Solids 240 (1998) 1-21. **
CA4	Mitkova, M.; Kozicki, M.N., Silver incorporation in Ge-Se glasses used in programmable metallization cell devices, J. Non-Cryst. Solids 299-302 (2002) 1023-1027. **
CB4	Miyatani, S.-y., Electronic and ionic conduction in (AgxCu1-x)2Se, J. Phys. Soc. Japan 34 (1973) 423-432. **
CC4	Miyatani, S.-y., Ionic conduction in beta-Ag2Te and beta-Ag2Se, Journal Phys. Soc. Japan 14 (1959) 996-1002. **
CD4	Mott, N.F., Conduction in glasses containing transition metal ions, J. Non-Cryst. Solids 1 (1968) 1-17. **
CE4	Nakayama, K.; Kitagawa, T.; Ohmura, M.; Suzuki, M., Nonvolatile memory based on phase transitions in chalcogenide thin films, Jpn. J. Appl. Phys. 32 (1993) 564-569. **
CF4	Nakayama, K.; Kojima, K.; Hayakawa, F.; Imai, Y.; Kitagawa, A.; Suzuki, M., Submicron nonvolatile memory cell based on reversible phase transition in chalcogenide glasses, Jpn. J. Appl. Phys. 39 (2000) 6157-6161. **
CG4	Nang, T.T.; Okuda, M.; Matsushita, T.; Yokota, S.; Suzuki, A., Electrical and optical parameters of GexSe1-x amorphous thin films, Jap. J. App. Phys. 15 (1976) 849-853. **
CH4	Narayanan, R.A.; Asokan, S.; Kumar, A., Evidence concerning the effect of topology on electrical switching in chalcogenide network glasses, Phys. Rev. B 54 (1996) 4413-4415. **
CI4	Neale, R.G.; Aseltine, J.A., The application of amorphous materials to computer memories, IEEE transactions on electron dev. Ed-20 (1973) 195-209. **
CJ4	Ovshinsky S.R.; Fritzsche, H., Reversible structural transformations in amorphous semiconductors for memory and logic, Metallurgical transactions 2 (1971) 641-645. **
CK4	Ovshinsky, S.R., Reversible electrical switching phenomena in disordered structures, Phys. Rev. Lett. 21 (1968) 1450-1453. **
CL4	Owen, A.E.; LeComber, P.G.; Sarabayrouse, G.; Spear, W.E., New amorphous-silicon

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

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Sheet	7	8	Attorney Docket Number	M4065.0694/P694-A

		electrically programmable nonvolatile switching device, IEE Proc. 129 (1982) 51-54. **	
	CM4	Owen, A.E.; Firth, A.P.; Ewen, P.J.S., Photo-induced structural and physico-chemical changes in amorphous chalcogenide semiconductors, Phil. Mag. B 52 (1985) 347-362. **	
	CN4	Owen, A.E.; Le Comber, P.G.; Hajto, J.; Rose, M.J.; Snell, A.J., Switching in amorphous devices, Int. J. Electronics 73 (1992) 897-906. **	
	CO4	Pearson, A.D.; Miller, C.E., Filamentary conduction in semiconducting glass diodes, App. Phys. Lett. 14 (1969) 280-282. **	
	CP4	Pinto, R.; Ramanathan, K.V., Electric field induced memory switching in thin films of the chalcogenide system Ge-As-Se, Appl. Phys. Lett. 19 (1971) 221-223. **	
	CQ4	Popescu, C., The effect of local non-uniformities on thermal switching and high field behavior of structures with chalcogenide glasses, Solid-state electronics 18 (1975) 671-681. **	
	CR4	Popescu, C.; Croitoru, N., The contribution of the lateral thermal instability to the switching phenomenon, J. Non-Cryst. Solids 8-10 (1972) 531-537. **	
	CS4	Popov, A.I.; Geller, I.KH.; Shemetova, V.K., Memory and threshold switching effects in amorphous selenium, Phys. Stat. Sol. (a) 44 (1977) K71-K73. **	
	CT4	Prakash, S.; Asokan, S.; Ghare, D.B., Easily reversible memory switching in Ge-As-Te glasses, J. Phys. D: Appl. Phys. 29 (1996) 2004-2008. **	
	CU4	Rahman, S.; Sivarama Sastry, G., Electronic switching in Ge-Bi-Se-Te glasses, Mat. Sci. and Eng. B12 (1992) 219-222. **	
	CV4	Ramesh, K.; Asokan, S.; Sangunni, K.S.; Gopal, E.S.R., Electrical Switching in germanium telluride glasses doped with Cu and Ag, Appl. Phys. A 69 (1999) 421-425. **	
	CW4	Rose, M.J.; Hajto, J.; Lecomber, P.G.; Gage, S.M.; Choi, W.K.; Snell, A.J.; Owen, A.E., Amorphous silicon analogue memory devices, J. Non-Cryst. Solids 115 (1989) 168-170. **	
	CX4	Rose, M.J.; Snell, A.J.; Lecomber, P.G.; Hajto, J.; Fitzgerald, A.G.; Owen, A.E., Aspects of non-volatility in a -Si:H memory devices, Mat. Res. Soc. Symp. Proc. V 258, 1992, 1075-1080. **	
	CY4	Schuoocker, D.; Rieder, G., On the reliability of amorphous chalcogenide switching devices, J. Non-Cryst. Solids 29 (1978) 397-407. **	
	CZ4	Sharma, A.K.; Singh, B., Electrical conductivity measurements of evaporated selenium films in vacuum, Proc. Indian Natn. Sci. Acad. 46, A, (1980) 362-368. **	
	CA5	Sharma, P., Structural, electrical and optical properties of silver selenide films, Ind. J. Of pure and applied phys. 35 (1997) 424-427. **	
	CB5	Snell, A.J.; Lecomber, P.G.; Hajto, J.; Rose, M.J.; Owen, A.E.; Osborne, I.L., Analogue memory effects in metal/a-Si:H/metal memory devices, J. Non-Cryst. Solids 137-138 (1991) 1257-1262. **	
	CC5	Snell, A.J.; Hajto, J.; Rose, M.J.; Osborne, L.S.; Holmes, A.; Owen, A.E.; Gibson, R.A.G., Analogue memory effects in metal/a-Si:H/metal thin film structures, Mat. Res. Soc. Symp. Proc. V 297, 1993, 1017-1021. **	
	CD5	Steventon, A.G., Microfilaments in amorphous chalcogenide memory devices, J. Phys. D: Appl. Phys. 8 (1975) L120-L122. **	
	CE5	Steventon, A.G., The switching mechanisms in amorphous chalcogenide memory devices, J. Non-Cryst. Solids 21 (1976) 319-329. **	
	CF5	Stocker, H.J., Bulk and thin film switching and memory effects in semiconducting chalcogenide glasses, App. Phys. Lett. 15 (1969) 55-57. **	
	CG5	Tanaka, K., Ionic and mixed conduction in Ag photodoping process, Mod. Phys. Lett B 4 (1990) 1373-1377. **	
	CH5	Tanaka, K.; Iizima, S.; Sugi, M.; Okada, Y.; Kikuchi, M., Thermal effects on switching phenomenon in chalcogenide amorphous semiconductors, Solid State Comm. 8 (1970) 387-389. **	
	CI5	Thornburg, D.D., Memory switching in a Type I amorphous chalcogenide, J. Elect. Mat. 2 (1973) 3-15. **	
	CJ5	Thornburg, D.D., Memory switching in amorphous arsenic triselenide, J. Non-Cryst. Solids 11	

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		(1972) 113-120. **	
CK5	Thornburg, D.D.; White, R.M., Electric field enhanced phase separation and memory switching in amorphous arsenic triselenide, Journal(?) (1972) 4609-4612. **		
CL5	Tichy, L.; Ticha, H., Remark on the glass-forming ability in GexSe1-x and AsxSe1-x systems, J. Non-Cryst. Solids 261 (2000) 277-281. **		
CM5	Titus, S.S.K.; Chatterjee, R.; Asokan, S., Electrical switching and short-range order in As-Te glasses, Phys. Rev. B 48 (1993) 14650-14652. **		
CN5	Tranchant, S.; Peytavin, S.; Ribes, M.; Flank, A.M.; Dexpert, H.; Lagarde, J.P., Silver chalcogenide glasses Ag-Ge-Se: Ionic conduction and exafs structural investigation, Transport-structure relations in fast ion and mixed conductors Proceedings of the 6th Riso International symposium. 9-13 September 1985. **		
CO5	Tregouet, Y.; Bernede, J.C., Silver movements in Ag2Te thin films: switching and memory effects, Thin Solid Films 57 (1979) 49-54. **		
CP5	Uemura, O.; Kameda, Y.; Kokai, S.; Satow, T., Thermally induced crystallization of amorphous Ge0.4Se0.6, J. Non-Cryst. Solids 117-118 (1990) 219-221. **		
CQ5	Uttecht, R.; Stevenson, H.; Sie, C.H.; Griener, J.D.; Raghavan, K.S., Electric field induced filament formation in As-Te-Ge glass, J. Non-Cryst. Solids 2 (1970) 358-370. **		
CR5	Viger, C.; Lefrancois, G.; Fleury, G., Anomalous behaviour of amorphous selenium films, J. Non-Cryst. Solids 33 (1976) 267-272. **		
CS5	Vodenicharov, C.; Parvanov, S.; Petkov, P., Electrode-limited currents in the thin-film M-GeSe-M system, Mat. Chem. And Phys. 21 (1989) 447-454. **		
CT5	Wang, S.-J.; Misium, G.R.; Camp, J.C.; Chen, K.-L.; Tigelaar, H.L., High-performance Metal/silicide antifuse, IEEE electron dev. Lett. 13 (1992) 471-472. **		
CU5	Weirauch, D.F., Threshold switching and thermal filaments in amorphous semiconductors, App. Phys. Lett. 16 (1970) 72-73. **		
CV5	Zhang, M.; Mancini, S.; Bresser, W.; Boolchand, P., Variation of glass transition temperature, Tg, with average coordination number, <m>, in network glasses: evidence of a threshold behavior in the slope dTg/d<m> at the rigidity percolation threshold (<m>=2.4), J. Non-Cryst. Solids 151 (1992) 149-154. **		
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LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)					APPLICANT John T. Moore et al.			
					PRIORITY FILING DATE March 1, 2001		PRIORITY GROUP 2813	
U.S. PATENT DOCUMENTS								
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate		
	AA	09/732,968	Gilton (as Filed)			12/08/2000		
	AB	09/779,983	Moore			02/08/01		
	AC	09/943,190	Campbell, et al.			08/29/01		
	AD	09/943,199	Campbell, et al.			08/29/01		
	AE	09/943,187	Campbell, et al.			08/29/01		
	AF	5,238,862	08/24/93	Blalock et al.	437	52		
	AG	5,360,981	11/01/94	Owen et al.	257	4		
	AH	5,761,115	06/02/98	Kozicki et al.	365	182		
	AI	5,896,312	04/20/99	Kozicki et al.	365	153		
	AJ	5,914,893	06/22/99	Kozicki et al.	365	107		
	AK	6,084,796	07/04/00	Kozicki et al.	365	153		
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	AL							
	AM							
	AN							
	AO							
	AP							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
	AR		Hirose, et al., "High Speed Memory Behavior and Reliability of an Amorphous As ₂ S ₃ Film Doped with Ag". July 17, 1980, pps. K187-K190.					
	AS		Hirose, et al., "Polarity-dependent memory switching and behavior of Ag dendrite in Ag-photodoped amorphous As ₂ S ₃ films", Journal of Applied Physics, Vol. 47, No. 6, June, 1976, pps. 2767-2772.					
	AT		Kawaguchi, et al., "Optical, electrical, and structural properties of amorphous Ag-Ge-S and Ag-Ge-Se films and comparison of photoinduced and thermally induced phenomena of both systems", Journal of Applied Physics, 79, June 1996, pps. 9096-9104.					
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	AL								
	AM								
	AN								
	AO								
	AP								
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)									
	AR		Axon Technologies Corporation, TECHNOLOGY DESCRIPTION: <i>Programmable Metallization Cell (PMC)</i> , (pre-July 7, 2000) pp. 1-8.						
	AS		Shimakawa et al., <i>Photoinduced effects and metastability in amorphous semiconductors and insulators</i> , 44 ADVANCES IN PHYSICS No. 6, 475-588 (Taylor & Francis Ltd. 1995)						
	AT		Mitkova, "Insulating and Semiconducting Glasses", Editor: P. Boolchand, World Scientific, New Jersey, 2000, pps. 813-843.						
EXAMINER				DATE CONSIDERED					
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	AE	09/943,187		Campbell, et al.			08/29/01
	AF	5,238,862	08/24/93	Blalock et al.	437	52	
	AG	5,360,981	11/01/94	Owen et al.	257	4	
	AH	5,781,115	06/02/98	Kozicki et al.	365	182	
	AI	5,896,312	04/20/99	Kozicki et al.	365	153	
	AJ	5,914,893	06/22/99	Kozicki et al.	365	107	
	AK	6,084,796	07/04/00	Kozicki et al.	365	153	

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	AL							
	AM							
	AN							
	AO							
	AP							

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)

	AR		Kluge, et al., "Silver photodiffusion in amorphous Ge ₂ Se ₁₂ ", Journal of Non-Crystalline Solids 124 (1990) pps. 186-193.
	AS		Kolobov, A.V., "Photodoping of amorphous chalcogenides by metals", Advances in Physics, 1991, Vol. 40, No. 5, pps. 625-684.
	AT		Mitkova, et al. "Dual Chemical Role of Ag as an Additive in Chalcogenide Glasses", Physical Review Letters, Vol. 83, No. 19, pps. 3848-3851.

EXAMINER

DATE CONSIDERED

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U.S. PATENT DOCUMENTS							
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	3,622,319	11/23/71	Sharp	96	27	
	AB	3,743,847	07/03/73	Boland	250	510	
	AC	4,269,935	05/26/81	Masters et al.	430	323	
	AD	4,312,938	01/26/82	Drexler et al.	430	496	
	AE	4,320,191	03/16/82	Yoshikawa et al.	430	296	
	AF	4,795,657	01/03/89	Formigoni et al.	427	96	
	AG	4,847,674	07/11/89	Silwa et al.	357	67	
	AH	5,177,567	01/05/93	Klersy et al.	257	4	
	AI	5,219,788	06/15/93	Abernathey et al.	437	187	
	AJ	5,726,083	03/10/98	Takaishi	438	210	
	AK	5,751,012	05/12/98	Wolstenholme et al.	257	5	
FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	Translation
							Yes No
	AL						
	AM						
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)							
	AN		Das et al., <i>Theory of the characteristic curves of the silver chalcogenide glass inorganic photoresists</i> , 54 APPL. PHYS. LETT., No. 18, pp. 1745-1747 (May 1989).				
	AO		Helbert et al., <i>Intralevel hybrid resist process with submicron capability</i> , SPIE Vol. 333 SUBMICRON LITHOGRAPHY pp. 24-29 (1982)				
	AP		Hilt, DISSERTATION: <i>Materials Characterization of Silver Chalcogenide Programmable Metallization Cells</i> , Arizona State University, pp. title page-114 (UMI Company, May 1999).				
EXAMINER				DATE CONSIDERED			
<p><small>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</small></p>							

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	AA	5,789,277	08/04/98	Zahorik et al.	438	95		
	AB	5,841,150	11/24/98	Gonzalez et al.	257	3		
	AC	5,920,788	07/06/99	Reinberg	438	466		
	AD	5,998,066	12/07/99	Block et al.	430	5		
	AE	6,077,729	06/20/00	Harshfield	438	128		
	AF	6,236,059 B1	05/22/01	Wolstenholme et al.	257	3		
	AG	6,297,170 B1	10/02/01	Gabriel et al.	438	738		
	AH	6,300,684 B1	10/09/01	Gonzalez et al.	257	774		
	AI	6,316,784 B1	11/13/01	Zahorik et al.	257	3		
	AJ	6,329,606 B1	12/11/01	Freyman et al.	174	260		
	AK	6,348,365	02/19/02	Moore et al.	438	130		
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL							
	AM							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
	AN		Holmquist et al., <i>Reaction and Diffusion in Silver-Arsenic Chalcogenide Glass Systems</i> ,					
			62 J. AMER. CERAMIC SOC., Nos. 3-4, pp. 183-188 (Mar.-Apr. 1979).					
	AO		Huggett et al., <i>Development of silver sensitized germanium selenide photoresist by reactive</i>					
			<i>sputter etching in SF₆</i> , 42 APPL. PHYS. LETT., No. 7, pp. 592-594 (April 1983).					
	AP		Kawaguchi et al., <i>Mechanism of photosurface deposition</i> , 164-166 J. NON-CRYST. SOLIDS,					
			pp. 1231-1234 (1993).					
EXAMINER				DATE CONSIDERED				
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	AA	6,376,284 B1	04/23/02	Gonzalez et al.	438	129	
	AB	6,391,688 B1	05/21/02	Gonzalez et al.	438	128	
	AC	6,414,376 B1	07/02/02	Thakur et al.	257	640	
	AD	6,418,049 B1	07/09/02	Kozicki et al.	365	174	
	AE	6,423,628 B1	07/23/02	Li et al.	438	622	
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OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)							
	AN		McHardy et al., <i>The dissolution of metals in amorphous chalcogenides and the effects of electron and ultraviolet radiation</i> , 20 J. PHYS. C: SOLID STATE PHYS., pp. 4055-4075 (1987).				
	AO		Miyatani, <i>Electrical Properties of Ag₂Se</i> , 13 J. Phys. Soc. Japan, p. 317 (1958).				
	AP		Mizusaki et al. <i>Kinetic Studies on the Selenization of Silver</i> , 47 BUL. CHEM. SOC. JAPAN., No. 11 pp. 2851-2855 (November 1974).				
EXAMINER				DATE CONSIDERED			
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>							

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LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)					APPLICANT: John T. Moore et al.			
					FILING DATE October 31, 2001		GROUP 2813	
U.S. PATENT DOCUMENTS								
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate		
	AA	10/077,867	Campbell et al. (as filed)			02/20/2002		
	AB	10/232,757	Li, et al. (as filed)			08/29/2002		
	AC							
	AD							
	AE							
	AF							
	AG							
	AH							
	AI							
	AJ							
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FOREIGN PATENT DOCUMENTS								
	Document Number	Date	Country	Class	Subclass	Translation		
						Yes	No	
	AL							
	AM							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
	AN		Owens et al., <i>Metal-Chalcogenide Photoresists for High Resolution Lithography and Sub-Micron Structures</i> , NANOSTRUCTURE PHYSICS AND FABRICATION, pp. 447-451 (Academic Press, 1989).					
	AO		Safran et al., <i>TEM study of Ag₂Se developed by the reaction of polycrystalline silver films and selenium</i> , 317 THIN SOLID FILMS, pp. 72-76 (1998).					
	AP		Shimizu et al., <i>The Photo-Erasable Memory Switching Effect of Ag Photo-Doped Chalcogenide Glasses</i> , 46 BUL. CHEM. SOC. JAPAN, No. 12, pp. 3662-3665 (December 1973).					
EXAMINER				DATE CONSIDERED				
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.								

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	AA						
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FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	Translation
							Yes No
	AL						
	AM						
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)							
	AN		Somogyi et al., <i>Temperature Dependence of the Carrier Mobility in Ag₂Se Layers Grown on NaCl and SiO₂ Substrates</i> , 74 ACTA PHYSICA HUNGARICA, No. 3, pp. 243-255 (1994).				
	AO		Tai et al., <i>Multilevel Ge-Se film based resist systems</i> , SPIE Vol. 333 SUBMICRON LITHOGRAPHY, pp. 32-39 (March 1982).				
	AP		Tai et al., <i>Submicron optical lithography using an inorganic resist/polymer bilevel scheme</i> , 17 J. Vac. Sci. Technol., No. 5, pp. 1169-1176 (Sept./Oct. 1980).				
EXAMINER				DATE CONSIDERED			
<p><small>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</small></p>							

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	AA							
	AB							
	AC							
	AD							
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	AK							
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL							
	AM							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
	AN		West, DISSERTATION: <i>Electrically Erasable Non-Volatile Memory Via electrochemical Deposition of Multifractal Aggregates</i> , Arizona State University, pp. title page-168 (UMI Co., May 1998).					
	AO		West et al., <i>Equivalent Circuit Modeling of the Ag_{0.24}S_{0.36}Ag_{0.40}Ag System Prepared by Photodissolution of Ag</i> , 145 J. Electrochem. Soc., No. 9, pp. 2971-2974 (September 1998).					
	AP		Yoshikawa et al., <i>A new inorganic electron resist of high contrast</i> , 31 APPL. PHYS. LETT., No. 3, pp. 161-163 (August 1977).					
EXAMINER				DATE CONSIDERED				
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>								

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LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)					APPLICANT: John T. Moor et al.			
					FILING DATE October 31, 2001		GROUP 2813	
U.S. PATENT DOCUMENTS								
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
	AA							
	AB							
	AC							
	AD							
	AE							
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	AH							
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	AJ							
	AK							
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL							
	AM							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
	AN		Yoshikawa et al., <i>Dry development of Se-Ge Inorganic photoresist</i> , 36 APPL. PHYS. LETT., No. 1, pp. 107-109 (January 1980).					
	AO							
	AP							
EXAMINER				DATE CONSIDERED				
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>								

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	AA							
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FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL							
	AM							
	AN							
	AO							
	AP							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
	AR		Johnson et al., <i>Lateral Diffusion in Ag-Se Thin-Film Couples</i> , 40 JOURNAL OF APPLIED PHYSICS,					
			No. 1, pp. 149-152 (January 1969).					
	AS							
	AT							
EXAMINER				DATE CONSIDERED				
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>								

Notice of References Cited

Application/Control No.

09/999,883

Applicant(s)/Patent Under
Reexamination
MOORE ET AL.

Examiner

Craig A Thompson

Art Unit

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U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-		07/17/02 0A	
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
✓	U	Derwent Abstracted Publication Number JP62034122A. (attached). 14 February 1987 "Integrated optical element of waveguide type - ..." Hitatchi Ltd.
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE			ATTY. DOCKET NO. MI22-1850		SERIAL NO. 09/999,883	
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					FILING DATE October 31, 2001		GROUP 2813	
U.S. PATENT DOCUMENTS								
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
	AA	09/921,518		Moore (as filed and as amended)			08/01/2001	
	AB	10/061,825		Gilton et al. (as filed)			01/31/2002	
	AC	4,405,710	09/20/83	Balasubramanyam et al.	430	311		
	AD	4,419,421	12/06/83	Wichelhaus et al.	429	191		
	AE	4,499,557	02/12/85	Holmberg et al.	365	163		
	AF	5,315,131	05/24/94	Kishimoto et al.	257	57		
	AG	5,350,484	09/27/94	Gardner et al.	156	628		
	AH	5,512,328	04/30/96	Yoshimura et al.	427	498		
	AI	5,512,773	04/30/96	Wolf et al.	257	471		
	AJ	5,846,889	12/08/98	Harbison et al.	501	40		
	AK	6,117,720	09/12/00	Harshfield	438	238		
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL	56126916 A	05.10.81	Abstract: Japan (Akira et al.)			X	
	AM	00/48196 A1	17.08.00	WIPO (Kozicki et al.)				
	AN	02/21542 A1	14.03.02	WIPO (Kozicki et al.)				
	AO							
	AP							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
	AR							
	AS							
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				FILING DATE October 31, 2001		GROUP 2813	

U.S. PATENT DOCUMENTS							
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
AA	6,143,604	11/07/00	Chiang et al.	438	253		
AB	6,177,338 B1	01/23/01	Liaw et al.	438	629		
AC	6,350,679 B1	02/26/02	McDaniel et al.	438	634		
AD							
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FOREIGN PATENT DOCUMENTS								
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